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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MATTI FLOMAN, JANI KLINT,
and JUKKA-PEKKA VIHMALO

Appeal 2009-002476
Application 10/817,448
Technology Center 2100

Decided: March 29, 2010

Before LANCE LEONARD BARRY, JEAN R. HOMERE, and
ST. JOHN COURTENAY III, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-22, 33, and 34. Claims 23-32 have been cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

STATEMENT OF THE CASE

INVENTION

Appellants' invention is related generally to memories in electronic devices. More particularly, the invention on appeal is directed to providing a direct communication between a memory module and a processor of the electronic device using a fast non-volatile random access memory provided in that memory module. (Spec. 1).

ILLUSTRATIVE CLAIM

1. A memory module, comprising:

a fast non-volatile random access memory, responsive to a command/data signal provided by a processor, configured to provide a permanent storage of information before said command/data signal is provided, configured to execute a command comprised in said command/data signal using said permanently stored information for providing a direct communication between said fast non-volatile random access memory and the processor; and

a double data interface configured to communicate with said processor,

wherein said memory module and said processor are parts of an electronic device.

PATENT PRIOR ART

Ganton	US 2003/0163656 A1	Aug. 28, 2003
Pua	US 2005/0041473 A1	Feb. 24, 2005
Eaton	US 2005/0128322 A1	Jun. 16, 2005
Lin	US 7,032,105 B2	Apr. 18, 2006
Witek	US 7,093,153 B1	Aug. 15, 2006

NON PATENT PRIOR ART

1. Micron Data Sheet, "Synchronous DRAM", Micron Technology Inc., 1999.
2. H. J. Coufal et al., "Ultrafast Nonvolatile Ferroelectric Information Storage Device," IBM Technical Disclosure Bulletin, Vol. 37, No. 11, Nov. 1994.

THE REJECTIONS

1. The Examiner rejected claims 1-4, 8, 12, 20-22, and 33 under 35 U.S.C. § 103(a) as unpatentable over the combination of Ganton, Lin, and Eaton.
2. The Examiner rejected claims 5 and 7 under 35 U.S.C. § 103(a) as unpatentable over the combination of Ganton, Lin, Eaton, and Witek.
3. The Examiner rejected claim 6 under 35 U.S.C. § 103(a) as unpatentable over the combination of Ganton, Lin, Eaton, Witek, and Micron.
4. The Examiner rejected claims 9-11, 13-18, and 34 under 35 U.S.C. § 103(a) as unpatentable over the combination of Ganton, Lin, Eaton, and Pua.
5. The Examiner rejected claim 19 under 35 U.S.C. § 103(a) as unpatentable over the combination of Ganton, Lin, Eaton, and Coufal.

ISSUES

Appellants argue specific limitations (App. Br. 7-21) that we address *infra*. Appellants also argue that the cited references have been improperly combined. (*Id.*). The Examiner contends that the cited references have been properly combined and that each argued limitation would have been taught or suggested by the combination of references at the time of the invention. (Ans. 12-17). Based upon our review of the administrative record, we have determined that the following issues are dispositive in this appeal:

Issue 1: Under § 103, did the Examiner err by improperly combining the cited references?

Issue 2: Under § 103, has the Examiner erred by finding that the combination of Ganton, Lin, and Eaton taught or would have suggested the claimed non-volatile random access memory and double data interface? (*See* Independent claims 1, 20, and 33).

Issue 3: Under § 103, has the Examiner erred by finding that the combination of Ganton, Lin, Eaton, and Witek taught or would have suggested the claimed register configured to set operating parameters? (*See* dependent claim 5).

Issue 4: Under § 103, has the Examiner erred by finding that the combination of Ganton, Lin, Eaton, and Witek taught or would have suggested the claimed write protection feature? (*See* dependent claim 7).

Issue 5: Under § 103, has the Examiner erred by finding that the combination of Ganton, Lin, Eaton, and Pua taught or would have suggested the claimed mass memory? (*See dependent claim 9*).

FINDINGS OF FACT

Appellants' Specification

1. Appellants disclose that “in a preferred embodiment of the present invention an interface between the processor 10 and the fast NVRAM 16 is a double data rate (DDR) type.” (Spec. 9, ll. 1-2).
2. Appellants disclose that “it is possible to connect the fast NVRAMs to a baseband mobile communication network through an existing mobile DDR interface.” (Spec. 8, 27-29).

The Lin reference

3. Lin teaches a DRAM 68 described as a double data rate (DDR) memory used for storing data and programs. (Col. 4, ll. 38-40, Fig. 3).
4. Lin teaches a memory control circuit 80 and a conversion circuit 74. (Col. 4, ll. 25-29, Fig. 3).
5. Lin teaches that DRAM 68 is constantly refreshed to maintain data and programs stored in DRAM 68 with the help of the uninterruptible power supply 70. (Col. 6, ll. 23-26).

The Witek reference

6. Witek teaches that a SRAM controller 161 with programmable registers is used to define the memory location and characteristics of each of four memory regions. (Col. 5, ll. 58-61).

PRINCIPLES OF LAW

“What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103.” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 419 (2007). To be nonobvious, an improvement must be “more than the predictable use of prior art elements according to their established functions.” *Id.* at 417.

Invention or discovery is the requirement which constitutes the foundation of the right to obtain a patent . . . unless more ingenuity and skill were required in making or applying the said improvement than are possessed by an ordinary mechanic acquainted with the business, there is an absence of that degree of skill and ingenuity which constitute the essential elements of every invention.

Dunbar v. Myers, 94 U.S. 187, 197 (1876) (citing *Hotchkiss v. Greenwood*, 52 U.S. 248, 267 (1850)) (*Hotchkiss v. Greenwood* was cited with approval by the Supreme Court in *KSR*, 550 U.S. at 406, 415, 427).

ANALYSIS

At the outset, we consider Appellants' arguments in the Briefs only to the extent that such arguments are directed to claimed subject matter.¹

Issue 1

Threshold question of combinability under § 103

We decide the question of whether Appellants have shown that the Examiner erred by improperly combining the cited references under § 103.

Appellants make the following contentions that are repeated throughout the principal Brief: (1) the Examiner did not show a suggestion or motivation found in the references themselves or in the knowledge of one or ordinary skill in the art to make the proffered combination, (2) the Examiner has not provided a reasonable expectation of success, (3) the references purportedly teach away, and (4) the Examiner has relied on impermissible hindsight. (App. Br. 7-21).

We begin our analysis by particularly noting that none of the combinability arguments presented in the Brief or Reply Brief mentions *KSR* as controlling authority, even though the principal Brief on appeal was filed on December 12, 2007, well after the April 30, 2007 date of the seminal *KSR* Supreme Court decision. In light of *KSR*, we have reviewed each of

¹ Patentability is based upon the claims. "It is the claims that measure the invention." *SRI Int'l v. Matsushita Elec. Corp. of America*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (*en banc*). A basic canon of claim construction is that one may not read a limitation into a claim from the written description. *Renishaw plc v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998).

Appellants' combinability arguments and find each argument unpersuasive. In particular, we find Appellants' combinability arguments in the Briefs are merely assertions, unsupported by substantive argument supported by specific evidence pointed to in the record. We note that mere attorney arguments and conclusory statements that are unsupported by factual evidence are entitled to little probative value. *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997); *see also In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984). *See also Ex parte Belinne*, No. 2009-004693, slip op. at 7-8 (BPAI Aug. 10, 2009) (informative), *available at* <http://www.uspto.gov/web/offices/dcom/bpai/its/fd09004693.pdf>

The Supreme Court in *KSR* clarified that the conclusion of obviousness can be based on the interrelated teachings of multiple patents, the effects of demands known to the design community or present in the marketplace, and the background knowledge possessed by a person having ordinary skill in the art, and an obviousness “analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418. *See also Dystar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006) (cited with approval in *KSR*, 550 U.S. at 421).

Here, it is our view that an artisan possessing common sense and creativity at the time of the invention would have been familiar with various methods of implementing different types of well known memory devices, such as the fast non-volatile random access memory claimed by Appellants (and associated double data interface). While we are fully aware that

hindsight bias often plagues determinations of obviousness, *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966), we are also mindful that the Supreme Court has clearly indicated that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR* 550 U.S. at 401.

This reasoning is applicable here. Given the breadth of Appellants’ claims, we are not persuaded that combining the respective familiar elements of the cited references in the manner proffered by the Examiner² was “uniquely challenging or difficult for one of ordinary skill in the art” (*see Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 418)). Therefore, we find the Examiner’s proffered combination of familiar prior art elements according to their established functions would have conveyed a reasonable expectation of success to a person of ordinary skill having common sense at the time of the invention.

Thus, when we take account of the inferences and creative steps that a person of ordinary skill in the art would have employed, we find the Examiner has articulated in each instance an adequate reasoning with a rational underpinning that reasonably supports the legal conclusion of

² We find no error with the Examiner rationale that “[i]ndependent claims 1, 20, and 33] would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention. In this instant, the substitution of one memory type for another would be obvious because substituting ‘volatile random access memory’ with a ‘non-volatile random access memory’ would have yield[ed] predictable results, retaining data, to one of ordinary skill in the art at the time of the invention.” (Ans. 14, ¶2).

obviousness. Therefore, we also do not agree with Appellants' assertion that the Examiner has engaged in impermissible hindsight in formulating the rejections.

Nor do we find Appellants have established an evidentiary basis for their "teaching away" arguments by showing how the cited references criticize, discredit, or otherwise discourage the alternatives. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (noting that merely disclosing more than one alternative does not teach away from any of these alternatives if the disclosure does not criticize, discredit, or otherwise discourage the alternatives). While Appellants strenuously argue that the Examiner's reasoning is "irrelevant to the 'problem to be solved by the present invention'" (App. Br. 14, ¶2), we note that "the law does not require that the references be combined for the reasons contemplated by the inventor." *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992).

Lastly, we note that Appellants have not rebutted the Examiner's legal conclusion of obviousness by showing that the claimed combination of familiar elements produces any new function. Appellants have not provided any factual evidence of secondary considerations, such as unexpected or unpredictable results, commercial success, or long felt but unmet need.

Therefore, we find Appellants' arguments unavailing regarding the combinability of the cited references for essentially the same reasons proffered by the Examiner in the Answer, and as further discussed above. Accordingly, we find the Examiner has not erred by improperly combining the cited references under § 103.

Issue 2

Limitations under § 103

We decide the question of whether the Examiner erred under § 103 by finding that the combination of Ganton, Lin, and Eaton taught or would have suggested the claimed non-volatile random access memory and double data interface. (*See* Independent Claims 1, 20, and 33).

Appellants present the following argument:

The applicant is of opinion that Lin teaches DDR (double data rate) DRAM 68 (see col. 4, lines 38-39 of Lin) which is a volatile memory, thus not teaching a double data interface between processor and a non-volatile memory, as recited in claim 1 of the present invention, contrary to what is alleged by the Examiner.

(App. Br. 11).

Contrary to Appellants' arguments, we note that none of independent claims 1, 20, and 33 recites the argued limitation of a double data interface between the processor and a non-volatile memory. Instead, claim 1 recites "a double data interface configured to communicate with said processor, wherein said memory module and said processor are parts of an electronic device." Based upon our review of Appellants' independent claims, we conclude there is no particular physical arrangement claimed that positively requires the double data interface to be physically between the processor and a non-volatile memory. Therefore, we find Appellants are arguing limitations that are not claimed. *See* Note 1 *supra*.

We particularly note that Appellants point to page 9, lines 1-2 of their Specification as providing support for the claimed double data interface. (App. Br. 5). In attempting to ascertain the scope of the claimed "double data interface" in light of the Specification, we find this portion of

Appellants' Specification merely discloses that "in a preferred embodiment of the present invention *an interface* between the processor 10 and the fast NVRAM 16 is a *double data rate (DDR) type*." (FF 1, emphasis added). While Appellants urge patentability based on the claimed "double data interface," (App. Br. 11), we find Appellants' Specification reveals that "it is possible to connect the fast NVRAMs to a baseband mobile communication network through an existing mobile DDR interface." (FF 2, underlined added). Thus, it is our view that Appellants have at least created a question as to whether the disclosed and claimed *double data interface* refers to an existing prior art interface.

Given the breadth of Appellants' disclosure, we find no error in the Examiner's determination that the claimed double data interface would have been taught or suggested by Lin. (Ans. 4, ¶2). We note that Lin teaches a DRAM 68 described as a double data rate (DDR) memory that is used for storing data and programs. (FF 3). Lin also teaches a memory control circuit 80 and a conversion circuit 74 (FF 4), each of which we find reasonably teaches or suggests the claimed double data interface. Further, we do not find error in the Examiner's determination (Ans. 12) that Lin would have taught or suggested a non-volatile memory by virtue of being powered by an uninterruptible power supply. (FF 5).

We have fully addressed Appellants combinability arguments *supra*. Because Appellants contend that independent claims 20 and 33 are patentable for the same reasons discussed regarding claim 1 (App. Br. 15), we sustain the Examiner's § 103 rejection of independent claims 1, 20, and 33 over the combination of Ganton, Lin, and Eaton.

Appellants remaining arguments regarding dependent claims 2-4, 8, 12, 21, and 22 are predicated on the combinability arguments that we have fully addressed *supra* and/or the purported patentability of independent claims 1 and 20, which we have also addressed *supra*. Accordingly, we also sustain the Examiner's § 103 rejection of dependent claims 2-4, 8, 12, 21, and 22 over the combination of Ganton, Lin, and Eaton for the same reasons addressed *supra* regarding independent claims 1, 20, and 33.

Likewise, Appellants' arguments regarding dependent claim 19 (App. Br. 20-21) are predicated on the combinability arguments that we have fully addressed *supra* and/or the purported patentability of independent claim 1, from which claim 19 depends, that we have also addressed *supra*. Therefore, we also sustain the Examiner's § 103 rejection of dependent claim 19 over the combination of Ganton, Lin, Eaton, and Coufal for the same reasons addressed *supra* regarding independent claim 1.

Issue 3

Limitations under § 103

We decide the question of whether the Examiner erred by finding that the combination of Ganton, Lin, Eaton, and Witek taught or would have suggested the claimed register configured to set operating parameters. (*See* dependent claim 5).

Appellants contend that the SRAM controller 161 in Witek is a controller for volatile SRAM memory and is not a part of the non-volatile memory as recited in claim 5. (App. Br. 17-18).

We note that Witek teaches that a SRAM controller 161 with programmable registers is used to define the memory location and characteristics of each of four memory regions. (FF 6).

Based upon our review of the record, we agree with the Examiner's findings regarding this issue. (Ans. 7). Appellants' argument (App. Br. 17-18) is unavailing because it does not take into account what the collective teachings of the prior art would have suggested to one of ordinary skill in the art and is therefore ineffective to rebut the Examiner's prima facie case of obviousness. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) ("The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art."). Therefore, we sustain the Examiner's § 103 rejection of dependent claim 5 over the combination of Ganton, Lin, Eaton, and Witek.

Appellants' arguments regarding dependent claim 6 (which depends from claim 5) are predicated on the combinability arguments that we have fully addressed *supra* and/or the purported patentability of dependent claim 5, which we have also addressed *supra*. Accordingly, we also sustain the Examiner's § 103 rejection of dependent claim 6 over the combination of Ganton, Lin, Eaton, and Witek for the same reasons discussed *supra* regarding dependent claim 5.

Issue 4

Limitations under § 103

We decide the question of whether the Examiner erred by finding that the combination of Ganton, Lin, Eaton and Witek taught or would have suggested the claimed write protection feature. (*See* dependent claim 7).

Appellants contend that Witek does not “talk specifically about write protection.” (App. Br. 18). Because the question of obviousness also involves an evaluation of what a reference would have suggested (and not merely an express teaching,) we find Appellants’ assertion is insufficient to persuade us of error in the Examiner’s legal conclusion of obviousness. The Examiner finds that a read-only region controlled by certain registers is a form of write protection. (Ans. 7). Because Appellants have not rebutted the specifics of the Examiner’s finding, we sustain the Examiner’s § 103 rejection of dependent claim 7 over the combination of Ganton, Lin, Eaton, and Witek.

Issue 5

Limitations under § 103

We decide the question of whether the Examiner erred by finding that the combination of Ganton, Lin, Eaton, and Pua taught or would have suggested the claimed mass memory. (*See* dependent claim 9).

Regarding the claim “mass” memory, we find Appellants’ mere assertion that Pua does not contain a “mass” memory to be unpersuasive. (App. Br. 20). In particular, we conclude that the claim term “mass” memory is a relative term and Appellants do not point to any specific definition that establishes the scope of this term in terms of a specific memory size, or a

memory size relative to some discernible point of reference. Therefore, we sustain the Examiner's § 103 rejection of dependent claim 9 over the combination of Ganton, Lin, Eaton, and Pua.

Appellants' remaining arguments regarding dependent claims 10, 11, 13-18, and 34 are predicated on the combinability arguments that we have fully addressed *supra* and/or the purported patentability of independent claims 1 and 33, which we have also addressed *supra*. Therefore, we also sustain the Examiner's § 103 rejection of dependent claims 10, 11, 13-18, and 34 over the combination of Ganton, Lin, Eaton, and Pua for the same reasons discussed *supra* regarding claims 1, 9, and 33.

CONCLUSIONS

Issue 1: The Examiner did not err by improperly combining the cited references under § 103.

Issue 2: The Examiner did not err by finding that the combination of Ganton, Lin, and Eaton taught or would have suggested the claimed non-volatile random access memory and double data interface. (*See* Independent claims 1, 20, and 33).

Issue 3: The Examiner did not err by finding that the combination of Ganton, Lin, Eaton, and Witek taught or would have suggested the claimed register configured to set operating parameters. (*See* dependent claim 5).

Issue 4: The Examiner did not err by finding that the combination of Ganton, Lin, Eaton, and Witek taught or would have suggested the claimed write protection feature. (*See* dependent claim 7).

Issue 5: The Examiner did not err by finding that the combination of Ganton, Lin, Eaton, and Pua taught or would have suggested the claimed mass memory. (*See* dependent claim 9).

ORDER

We affirm the Examiner's decision rejecting claims 1-22, 33, and 34 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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